

REMARKS/ARGUMENTS

This application has been carefully reviewed in light of the Office Action mailed July 29, 2008. Claims 1, 20, and 28 have been amended above. Applicant respectfully submits that no new matter has been added. Claims 1-11 and 13-32 are currently pending in this application. Applicant respectfully requests reconsideration of this application and favorable action on all remaining claims in view of the foregoing amendments and the following remarks.

In the Office Action, the Examiner indicated that claims 29-32 are allowed. Applicant thanks the Examiner for this allowed subject matter.

In the Office Action, the Examiner objected to claim 16 as being dependent upon a rejected base claim. However, the Examiner indicated that claim 16 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant appreciates this indication of allowable subject matter.

In the Office Action, the Examiner objected to claim 28 due to minor informalities. Claim 28 has been amended consistent with the Examiner's instructions. Withdrawal of the objection is respectfully requested.

Claims 1-3, 5-6, 10-11, 20, 23-24 stand rejected under 35 U.S.C. § 103 as being unpatentable over Na et al. (newly cited US 2003/0069993) ("Na") and Tingley et al. (US 2002/0138628) ("Tingley"). Applicant respectfully traverses these claim rejections as to independent claims 1 and 20.

Regarding Na, the Office Action states that:

Na et al. fail to disclose a system comprising: a layer 2 switch having a plurality of ports; a second server configured to be in communication with a second one of the plurality of ports; wherein the first server and the second server share a virtual IP address.¹

¹ Office Action, mailed 07/29/2008, p. 4.

Tingley has been cited as supplying this admitted deficiency of Na. For at least the reasons set forth below, Applicant respectfully submits that Tingley fails to do so.

As discussed in detail below, Applicant respectfully submits that Tingley fails to disclose a shared virtual IP address as claimed in claim 1. Tingley discloses a system that allows the connection of virtual IP networks (i.e., separate private IP address spaces within the same network), as that term is defined in Tingley, to a layer 2 Ethernet switch.² Tingley discloses the possibility that the same IP address could be used in each of the virtual IP networks (i.e., virtual IP network A could use 192.168.1.25 and virtual IP network B could use 192.168.1.25).³ Applicant respectfully submits that even if it is assumed, for the sake of argument, that virtual IP network A (74) and virtual IP network B (76) as shown, for example, in Fig. 3 of Tingley are considered to correspond to the first server and second server of claim 1, Tingley still does not supply the above-noted deficiency of Na.

The cited references fail, even in combination, to disclose the feature of claim 1 that each of the first and second servers shares a virtual IP address that is different from the real IP address of either of the first or the second server. In Tingley, each device within a virtual IP network has a so-called virtual IP address that is mapped directly to a physical Ethernet/MAC address for that device within the virtual IP network.⁴ While Tingley uses the word "virtual" for this IP address mapping, it is in the sense that these mapped IP addresses can be allocated into a "virtual" group (i.e., a virtual IP network) that can independently operate with other virtual IP networks over a physical network.⁵ Applicant respectfully submits that the virtual IP address of Tingley does not correspond to the shared virtual IP address as claimed in claim 1, which shared virtual IP address is required by the language of claim 1 to be different from the real IP address of a server and is also required to be shared by the first and second servers. For at least this reason, Applicant respectfully requests that Examiner's rejection be withdrawn with regard to claim 1.

² Tingley, Fig. 3; Par. 6, 9-11, 37-38.

³ Tingley, par. 37.

⁴ See Tingley, par. 38.

⁵ Tingley, par. 4 & 8.

Additionally, further assuming, for the sake of argument, that an identical IP address used by a hypothetical virtual IP network A and virtual IP network B is a shared virtual IP addresses as claimed in claim 1 and that virtual IP network A and virtual IP network B correspond to the first and second server as claimed in claim 1, the cited combination of Na and Tingley does not disclose the feature of claim 1 that each server provide a shared virtual MAC address in response to an ARP request received by both servers for the shared virtual IP address.

The Virtual Network Device (62)⁶ of Tingley distinguishes between references to a duplicated IP address on a per-virtual-network basis using the Bridge or Switch (66)⁷ to communicate with the appropriate server within a virtual IP network.⁸ In other words, the Bridge or Switch (66) receives a network packet and, based upon a value contained within the packet, routes the packet to the appropriate virtual IP network. Tingley discloses use of a VLAN ID (42) field within the ARP request message that the Bridge or Switch (66) uses to forward the request via a specific port to a specific virtual network.⁹

In Tingley, multiple servers within a specific virtual IP network cannot share a Tingley virtual IP address because, when the request packet is received by the Bridge or Switch (66) from the Virtual Network Device (62), the Bridge or Switch (66) "removes the VLAN ID field and forwards the packet on to one of the Ethernet links" which is connected to one of the virtual [IP] networks.¹⁰ This forwarded request must then be routed to a specific server within that specific virtual IP network.¹¹ Tingley discloses that each (i.e., single) server within a given virtual IP network is associated with a (i.e., a single) virtual IP address from the private IP space; therefore each server within a given virtual IP network must have a separate IP address (regardless of whether the IP address is referred to by Tingley as "virtual" or not).

Thus, within a single virtual IP network as disclosed in Tingley, sharing a virtual IP address that is unique relative to a real IP address of each of two servers as in claim 1 is simply

⁶ Tingley, Fig. 3.

⁷ Tingley, Fig. 3.

⁸ Tingley, par. 38.

⁹ Tingley, par. 45.

¹⁰ Tingley, par. 47.

¹¹ See Tingley, par. 45-46.

not disclosed. Thus, Tingley does not disclose sharing an IP address among multiple servers within a specific virtual network. Further, an ARP request in Tingley would not be routed to at least two servers within a single virtual network where both would respond with a single shared virtual MAC address as required by claim 1. For at least this reason, Applicant respectfully requests that Examiner's rejection be withdrawn with regard to claim 1.

Additionally, assuming for the sake of argument, that multiple servers sharing an IP address within a single Tingley virtual network correspond to the first and second server as claimed in claim 1 and that the Bridge or Switch of Tingley corresponds to the layer 2 switch of claim 1, the cited combination of Na and Tingley does not disclose the feature of claim 1 that each of the servers would be configured to be in communication with a different port of a plurality of ports of the bridge or switch as required by claim 1. This is because each port of the Tingley Bridge or Switch would be connected to a virtual network, not directly to the individual first or second server that would be encapsulated within the virtual network.¹² Thus, each server within the virtual network would not be configured to be in communication with a different port of a plurality of ports of the layer 2 switch in claim 1. For at least this reason, Applicant respectfully requests that Examiner's rejection be withdrawn with regards to claim 1.

Moreover, even if it is assumed for the sake of argument that the Bridge or Switch of Tingley corresponds to the layer 2 switch of claim 1, given Tingley's disclosed use of the data in the VLAN ID field to distinguish between references to a duplicated IP address, it would be impossible in Tingley for multiple servers sharing an IP address but in separate virtual IP networks (e.g., one server in virtual IP network A and another server in virtual IP network B) to provide a shared virtual MAC address in response to a single ARP request received by both of the servers for the shared virtual IP address. This is because an ARP request in Tingley would be distinguished by the Virtual Networking Device (62) and routed via the Bridge or Switch (66) to a specific server within only one of the virtual IP networks (e.g., only one of a server in virtual IP network A or a server in virtual IP network B) and would not be broadcast to multiple servers. As only one server in Tingley would ultimately receive the ARP request in this scenario, other servers with the shared IP address could not provide a shared virtual MAC address in response as

required by claim 1.¹³ For at least the reasons set forth above, Applicant respectfully requests that Examiner's rejection be withdrawn with regards to claim 1.

Independent claim 20

With respect to independent claim 20, Applicant respectfully submits that, in similar fashion to the discussion above relative to the obviousness rejections of independent claim 1, each of the cited references fails to disclose configuring the plurality of servers to each have a shared virtual IP address, the shared virtual IP address being different from the real IP address of the plurality of servers. Additionally, Applicant respectfully submits that each of the cited references also fails to disclose establishing a communication path between the plurality of servers and a layer 2 switch such that each one of the plurality of servers is configured to be in communication with a different port of a plurality of ports of the layer 2 switch. Finally, Applicant respectfully submits that each of the cited references also fails to disclose configuring the plurality of servers to provide the shared virtual MAC address responsive to an ARP request received by the plurality of servers for the virtual IP address. Applicant therefore respectfully submits that, for at least these reasons, independent claim 20 also distinguishes over the cited references and is in condition for allowance. Withdrawal of the rejection of independent claim 20 as obvious in light of Na in view of Tingley is respectfully requested.

Dependent claims 1-11, 13-19, and 21-28

Dependent claims 2-11 and 13-19 depend from and further limit independent claim 1 in a patentable sense. Applicant therefore respectfully submits that, for at least the reasons set forth above with respect to the obviousness rejections of independent claim 1, these dependent claims also distinguish over the cited references and are in condition for allowance. Withdrawal of the anticipation rejections thereof is respectfully requested.

Dependent claims 21-28 depend from and further limit independent claim 20 in a patentable sense. Applicant therefore respectfully submits that, for at least the reasons set forth

¹² See Tingley, par. 44.

¹³ Application, p. 9 ll. 4-14, p. 10 ll. 14-19, p. 11 ll. 1-3.

above with respect to the obviousness rejections of independent claim 20, these dependent claims also distinguish over the cited references and are in condition for allowance. Withdrawal of the anticipation rejections thereof is respectfully requested.

Rejection on obviousness grounds cannot be supported by mere conclusory statements

Furthermore, the Office Action asserts that:

Na et al. in view of Tingley et al. fail to disclose a system, wherein a third port is configured to be in communication with a client; wherein the first server and the second server share a virtual MAC address. However it is well known in the art at the time of the invention to implement a system, wherein a third port is configured to be in communication with a client; wherein the first server and a second server share a virtual MAC address.¹⁴

Applicant respectfully submits that sole reliance on "common knowledge" in the art as the principal basis for a rejection of claims 1 and 20, without evidentiary support in the record, is never appropriate.¹⁵ The court in Zurko stated, "[t]he [Examiner] cannot simply reach conclusions based on its own understanding or experience-or on its assessment of what would be basic knowledge or common sense. Rather, the [Examiner] must point to some concrete evidence in the record in support of these findings."¹⁶ Further, a rejection lacks substantial evidentiary support if it is not based upon any evidence in the record.¹⁷ Applicant respectfully submits that "[r]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness."¹⁸ In light of the above, Applicant respectfully requests that the Examiner provide to Applicant the requisite concrete evidence in support of the Office Action's assertions of what is common knowledge or withdraw same.

¹⁴ p. 5.

¹⁵ *In re Zurko*, 258 F.3d 1379, 1385 (Fed. Cir. 2001).

¹⁶ *Id.* at 1385.

¹⁷ *Id.*

¹⁸ *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (cited with approval in *KSR Int'l Co. v. Teleflex*, 127 S.Ct. 1727 (2007)).

The Examiner has not met his burden of showing that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains

Applicant respectfully submits that, even assuming the Examiner's assertions in the Office Action pertaining to independent claim 1 are true, the Examiner has not met his burden of showing that the "subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."¹⁹ In particular, Applicant respectfully draws the attention of the Examiner to the following features of claim 1 that the Examiner has not addressed in the Office Action in any way:

- wherein the second server has a real IP address and a real MAC address
- wherein the real MAC address of the second server and the real MAC address of the first server are different from one another
- wherein the shared virtual MAC address is different from the real MAC address of the first server and different from the real MAC address of the second server
- wherein the shared virtual IP address is different from the real IP address of the first server and different from the real IP address of the second server
- wherein the first server and the second server are configured to provide the shared virtual MAC address responsive to an ARP request for the shared virtual IP address
- wherein each of the first server and the second server is configured to provide its real MAC address responsive to an ARP request for its real IP address

Applicant respectfully submits that: 1) the Examiner has failed to address all features of independent claim 1; 2) its rejection is unsupported by the cited art; and 3) a *prima facie* case of obviousness has not been established with regard to claim 1. Applicant therefore respectfully requests that Examiner's rejection be withdrawn with regard to claim 1.

Likewise, Applicant respectfully submits that even assuming the Examiner's assertions are true in the Office Action pertaining to independent claim 20, the Examiner has not met his burden of showing that the "subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."²⁰ In particular, Applicant respectfully draws the attention of the Examiner to the

¹⁹ p. 3 (referring to 35 U.S.C. § 103(a)).

²⁰ p. 3 (referring to 35 U.S.C. § 103(a)).

following features of claim 20 that the Examiner has not addressed in the Office Action in any way:

- configuring a plurality of servers to each have a real IP address and a real MAC address, wherein the real IP address and the real MAC address of each of the plurality of servers is different from one another;
- configuring the plurality of servers to each have a shared virtual IP address, the shared virtual IP address being different from the real IP address of the plurality of servers;
- configuring the plurality of servers to each have a shared virtual MAC address for the virtual IP address, the shared virtual MAC address being different from the real MAC addresses of the plurality of servers;
- establishing a communication path between the plurality of servers and a layer 2 switch such that each one of the plurality of servers is configured to be in communication with a different port of a plurality of ports of the layer 2 switch;
- configuring a plurality of servers to provide the shared virtual MAC address responsive to an ARP request for the virtual IP address; and

Applicant respectfully submits that: 1) the Examiner has failed to address all features of independent claim 20; 2) its rejection is unsupported by the cited art; and 3) a *prima facie* case of obviousness has not been established with regard to claim 20. Applicant respectfully requests that Examiner's rejection be withdrawn with regard to claim 20.

In view of the above remarks, Applicant respectfully submits that the present application is in condition for allowance. A Notice to that effect is respectfully requested.

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